REMARKS

In the final Office Action mailed December 02, 2004, the Examiner rejected claims 47 and 48 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner also rejected claims 1, 5-10, 13, and 14 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,158,949 to Walth et al. (hereinafter "Walth") in view of U.S. Patent No. 5,503,234 to Liston (hereinafter "Liston"); rejected claims 4, 11, 17-20, 47, and 48 under 35 U.S.C. § 103(a) as being unpatentable over Walth in view of Liston and further in view of El Wakil, Processing and Design for Manufacturing (Prentice Hall 1989) (hereinafter "El Wakil"); rejected claims 15, 16, and 21-35 under 35 U.S.C. § 103(a) as being unpatentable over Walth in view of U.S. Patent No. 6,060,682 to Westbroek et al. (hereinafter "Westbroek") and further in view of El Wakil; and rejected claim 12 under 35 U.S.C. § 102(b) as anticipated by Westbroek or, in the alternative, under 35 U.S.C. 103(a) as obvious over Walth in view of Westbroek. Claims 1 and 4-48 are currently pending, with claims 36-46 withdrawn from further consideration. Applicants respectfully traverse the rejections under 35 U.S.C. § 102(b), § 103(a), and § 112, first paragraph.

Information Disclosure Statement

Applicants acknowledge the Examiner's notification that the Information Disclosure Statement filed by mail on October 19, 2004, did not include copies of the cited foreign references. Applicants have enclosed herewith copies of each of the three foreign references cited in the October 19 IDS. Applicants have also included a clean copy of the PTO/SB/08A form for the Examiner's convenience. Applicants respectfully request that the Examiner indicate on the attached Form that these references have been considered.

Regarding Claim Rejections under 35 U.S.C. § 112

Applicants respectfully traverse the Examiner's rejection of claims 47 and 48 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleged that "[a]pplicant stated that these claims had support on pages 8-9 of the specification but no mention of pressure fitting was found there." (Office Action at 2-3.) Applicants respectfully disagree.

Paragraph [29], for example, on page 8, includes that "[i]n selecting a material for the support members 801 having a higher yield strength then the surrounding stick material 805, the support members 801 can absorb the radial stresses produced by pressure fitting the bearings 802 into the respective support members 801 which allows for less stick material 805 surrounding the aperture 606 then otherwise would be required." (emphasis added.) Thus, claims 47 and 48 are supported at least by the sentences stated above. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 47 and 48 under 35 U.S.C. § 112, first paragraph.

Regarding Response to Applicants' Arguments

In response to Applicants' arguments, the Examiner alleged that "Walth is not used as the teaching of relative yield strengths, this teaching is found in Liston," and "relative yield strength is taught through relative hardness, as it is known that hardness and yield strength are related (see the definition Brinell Hardness)." (Office Action at 11-12.) Applicants respectfully disagree.

By stating that "relative yield strength is taught through relative hardness," the Examiner apparently recognized that Liston does not teach relative yield strength directly. Further, contrary to the Examiner's allegation, Liston's relative hardness

cannot constitute a teaching of relative yield strength. Liston discloses a surface coating scheme where "one or more surfaces of any of the bearing assemblies described herein are coated with one or more protective composite superhard surface coatings." Liston, column 8, lines 21-24, emphasis added. Liston indicates that the coating scheme has "[t]he most significant improvement in wear resistance involving the coating of only a portion of the bearing assembly." Liston, column 8, lines 60-63, emphasis added. Yield strength, on the other hand, corresponds to stress of structures, not wear resistance of structures. Thus, Liston's teaching of using a relative harder protective coating to enhance wear resistance does not constitute a "support member having a second yield strength greater than said first yield strength," as recited in claim 1. (emphasis added.) Moreover, in absence of any teaching or suggestion from the prior art, "when an examiner relies on a scientific theory, evidentiary support for the existence and meaning of that theory must be provided." See M.P.E.P. § 2144.02, quoting In re Grose, 592 F.2d 1161, 201 USPQ 57 (CCPA 1979).

The Examiner also alleged that "El Wakil does teach throughout the reference the prior design and testing of weldments and the effects of the involved heating, and thus simulates the welding for the effect of heat." (Office Action at 12.) Applicants respectfully disagree. A general description or teaching of welding process or heat effect does not constitute a teaching of simulating weldment for effect of heat. That is, such a general description fails to disclose a "weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as recited in claims 15 and 31 (emphasis added).

Regarding Claim Rejections Under 35 U.S.C. § 103

Applicants respectfully traverse the Examiner's rejection of claims 1, 5-10, 13, and 14 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston. In order to establish a prima facie case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. See M.P.E.P. § 2143.

Independent claim 1 recites a combination including, for example, "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength." Walth fails to teach at least the claim elements quoted above.

Walth discloses a boom assembly of a work machine including a coupling subassembly. "Coupling subassembly 24 further includes a boss 50 having an end 60, an end 62, and a pin passageway 52 extending therethrough." Walth, column 3, lines 16. "Coupling subassembly 24 also includes an auxiliary support member 46 having a hole 54 defined therein, and an auxiliary support member 48 having a hole 74 defined therein. . . ." Walth, column 3, lines 6-13. However, Walth does not mention any yield strength of members of the coupling assembly. Thus, Walth does not teach or suggest "said second load bearing member having an end comprising a material having a first

yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength," as required by claim 1.

Liston fails to cure Walth's deficiencies. Liston teaches a bearing assembly with polycrystalline superlattice coating. Regarding the polycrystalline superlattice coating, Liston states that "[t]he most effective wear resistance is typically imparted where all bearing assembly surfaces, such as an outer race, an inner race and a roller element are coated with the coating set forth herein." Liston, column 8, lines 57-63, emphasis added. However, yield strength corresponds to stress of structures, not wear resistance of structures. Thus, Liston's teaching of wear resistance does not constitute a teaching of "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength," as required by claim 1 (emphasis added).

Therefore, neither Walth nor Liston, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in claim 1. Applicants respectfully request withdrawal of the rejection of claim 1. Because claims 5-10, 13, and 14 depend on claim 1, either directly or indirectly, Applicants also

request withdrawal of the rejections of claims 5-10, 13, and 14 for at least the same reasons stated above.

Applicants also respectfully traverse the Examiner's rejection of claims 4, 11, and 17-20, 47, and 48 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and further in view of El Wakil. Claims 4 and 11 depend on claim 1, either directly or indirectly.

As explained above, Walth in view of Liston fail to teach at least "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength," as recited in claim 1.

El Wakil fails to cure Walth and Liston's deficiencies. El Wakil teaches general text book knowledge about welding processes and heat effects on weldment. However, El Wakil does not teach or suggest "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength," as recited in claim 1.

Thus, none of Walth, Liston, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in

claim 1. Because claims 4 and 11 depend on claim 1, either directly or indirectly, Applicants respectfully request withdrawal of the rejections of claims 4 and 11 for at least the same reasons stated above.

Independent claim 47, while of different scope, recites similar language as in claim 1. Claim 47 and its dependent claim 48 are therefore also allowable for at least the same reasons stated above. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 47 and 48.

Claims 17-20 depend on claim 15, either directly or indirectly. Independent claim 15 recites a combination including, for example, "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed." Walth fails to teach or suggest "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as required by claim 15.

Walth discloses a boom assembly of a work machine including a coupling subassembly. "Coupling subassembly 24 further includes a boss 50 having an end 60, an end 62, and a pin passageway 52 extending therethrough." Walth, column 3, lines 16. However, Walth does not teach or suggest simulating weldment for effects of heat.[1] Neither does Liston. Liston teaches a bearing assembly with polycrystalline superlattice coating, but does not mention simulating weldment for effects of heat.

El Wakil fails to cure both Walth's and Liston's deficiencies. El Wakil discusses the metallurgy of fusion welding. "During fusion welding three zones can be identified, .

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1 The Examiner recognized this by stating "Walth is silent on weldments being simulated for effects of heat on at least one of said pieces subject to said weldment." (Office Action, at 4).

. . . The second zone, which is referred to as the heat-affected zone, or HAZ, is that portion of the base metal that has not been melted." El Wakil, at 71. "In fusion-welding processes, considerable thermal stresses develop during heating and subsequent cooling of the workpiece, especially with those processes that result in large heat-affected zones." El Wakil, at 87. While El Wakil describes the general effects of the heating associated with welding, El Wakil does not mention simulating the welding for effect of heat on specific workpieces in order to minimize the adverse effects of welding. A general description or teaching of welding process or heat effect does not constitute a teaching of simulating weldment for effect of heat. Specifically, El Wakil fails to teach or suggest "said weldment being simulated for effects of heat on at least one said pieces subject to said weldment before said weldment is constructed," as recited in claims 15 and 31 (emphasis added). Therefore, El Wakil fails to teach or suggest "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as required by claim 15.

Therefore, none of Walth, Liston, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention as recited in claim 15. Because claims 17-20 depend on claim 15, either directly or indirectly, Applicants respectfully request withdrawal of the rejection of claims 17-20 for at least for the above stated reasons.

Applicants also respectfully traverse the Examiner's rejection of claims 15, 16, 21-35 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Westbroek and further in view of El Wakil. As explained above, Walth and El Wakil fail to teach or suggest at least "said weldment being simulated for effects of heat on at least one of

said pieces subject to said weldment before said weldment is constructed," as required by claim 15.

Westbroek fails to cure the deficiencies of Walth and El Wakil. Westbroek discloses a joint "formed between adjacent edges of a pair of weldable components by forming an undercut on one of the edges," and "the edges are laser welded by impinging a beam on the portion to melt the overlap." Westbroek, abstract. Westbroek teaches that, to prepare for the laser welding, "[t]he sheared surfaces of the metals or weld components have to be maintained parallel to each other by being clamped onto a suitable support while the welding head, typically a laser beam, moves relative to the seam to achieve joining of the components." Westbroek, column 1, lines 21-26. "[T]he supports 16 can be arranged as shown in FIG. 6 to align the components 12c, 14c in the desired position so that after welding, the components adopt a corresponding position." Westbroek, column 4, lines 46-49. However, Westbroek's teaching of preparation of supports to hold the components to be welded does not constitute a teaching of "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as recited by claim 15 (emphasis added).

Therefore, none of Walth, Westbroek, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention as recited in claim 15. Applicants respectfully request withdrawal of the rejection of claim 15. Because claims 16 and 21-30 depend on claim 15, either directly or indirectly, Applicants also request withdrawal of the rejection of claims 16 and 21-30 for at least for the above stated reasons.

Independent claim 31, while of different scope, recites similar language as in claim 15. Claim 31 is therefore also allowable for at least the same reasons stated above. Accordingly, Applicants also request withdrawal of the rejection of claim 31 and its dependent claims 32-35.

Applicants also respectfully traverse the Examiner's rejection of claim 12 under 35 U.S.C. 103(a) as unpatentable over Walth in view of Westbroek. Claim 12 recites a combination including, for example, "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear." Walth fails to teach or suggest at least "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear," as recited by claim 12.

Walth discloses a boom assembly of a work machine including a coupling subassembly. "Coupling subassembly 24 further includes a boss 50 having an end 60, an end 62, and a pin passageway 52 extending therethrough." Walth, column 3, lines 16. However, Walth does not teach or suggest "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear," as recited by claim 12.

Westbroek fails to cure Walth's deficiencies. As explained above, Westbroek discloses preparations of supports to hold the components to be welded. In Fig. 6, Westbroek teaches that "components 12c, 14c" may be supported by unnumbered structures to "align components 12c, 14c in the desired position so that after welding,

the components adopt a corresponding position." Westbroek, column 4, lines 45-54, emphasis added. However, such unnumbered structures do not constitute a "load bearing member," as recited in claim 12. Furthermore, welding components 12c and 14c in Westbroek are general welding components and, thus, do not constitute "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear," as recited by claim 12.

Therefore, neither Walth nor Westbroek, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in claim 12. Applicants respectfully request withdrawal of the rejection of claim 12.

Regarding Claim Rejections Under 35 U.S.C. § 102

Applicants respectfully traverse the Examiner's rejection of claim 12 under 35 U.S.C. § 102(b) as anticipated by Westbroek. In order to anticipate Applicants' claimed invention under 35 U.S.C. § 102, each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Further, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." See M.P.E.P. § 2131, quoting Richardson v. Suzuki Motor Co., 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989), emphasis added.

As explained above, Westbroek's teaching of unnumbered structures does not constitute a "load bearing member," as recited in claim 12. Further, Westbroek's teaching of general welding components 12c and 14c does not constitute a teaching of "at least two adjacent side plates, each having a different thickness," as recited in claim

12. Thus, Westbroek fails to disclose each and every element of claim 12. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 12.

Conclusion

In view of the foregoing remarks, Applicants submit that this claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request reconsideration and reexamination of the application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: January 21, 2005

By: _____
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